

**Montana Board of Oil and Gas Conservation
Environmental Assessment**

Operator: Continental Resources, Inc.

Well Name/Number: Cooper 1-10H

Location: NE NW Section 10 T26N R53E

County: Richland, **MT;** **Field (or Wildcat)** W/C (Bakken Horizontal)

Air Quality

(possible concerns)

Long drilling time: No, 30 to 40 days drilling time.

Unusually deep drilling (high horsepower rig): No triple derrick drilling rig to drill to 18,816'MD/9,100'TVD a single lateral horizontal Bakken Formation well.

In/near Class I air quality area: No Class I air quality area, in the area of review.

Air quality permit for flaring/venting (if productive): Yes, DEQ air quality permit required under 75-2-211.

Mitigation:

☒ Air quality permit (AQB review)

☐ Gas plants/pipelines available for sour gas

☐ Special equipment/procedures requirements

☐ Other: _____

Comments: No special concerns – using triple rig to drill a 18,816'MD/9,100'TVD single lateral horizontal Bakken Formation well test. If there are existing pipeline for gas in the area then gas must be tied into system or if no gathering system nearby gas can be flared under Board Rule 36.22.1220.

Water Quality

(possible concerns)

Salt/oil based mud: Yes, oil based invert drilling fluid system on the mainhole and saltwater for the horizontal lateral. Freshwater and freshwater mud system on surface hole.

High water table: No high water table anticipated at this surface location.

Surface drainage leads to live water: Yes, closest drainages are unnamed ephemeral tributary drainages to West Charlie Creek, about 1/8 of a mile to the north and 3/8 of a mile to the south from this location.

Water well contamination: No, nearest water wells are about 3/4 of a mile to the west northwest and about 1 mile to the southeast from this location. Depth of these water wells range from 90' to 450'. Surface hole must be drilled with freshwater and freshwater mud. Surface casing will be set at 1050' and cemented to surface.

Porous/permeable soils: No, silty sandy clay soils.

Class I stream drainage: No Class I stream drainages in the area of review.

Mitigation:

☒ Lined reserve pit

☒ Adequate surface casing

☐ Berms/dykes, re-routed drainage

☒ Closed mud system

☐ Off-site disposal of solids/liquids (in approved facility)

☐ Other: _____

Comments: 1050' of surface casing cemented to surface adequate to protect

freshwater zones. Continental Resources will utilize a closed loop mud system with on site burial of cuttings in a lined pit.

Soils/Vegetation/Land Use

(possible concerns)

Stream crossings: No stream crossings anticipated, only crossing ephemeral drainages.

High erosion potential: No, moderate cut, up to 12.9' and moderate fill, up to 17.3', required.

Loss of soil productivity: No, location will be restored after drilling, if nonproductive. If productive unused portion of drillsite will be reclaimed.

Unusually large wellsite: Yes, a large wellsite, 500'X270'.

Damage to improvements: Slight, surface use grassland prairie.

Conflict with existing land use/values: Slight

Mitigation

☐ Avoid improvements (topographic tolerance)

☐ Exception location requested

☒ Stockpile topsoil

☐ Stream Crossing Permit (other agency review)

☒ Reclaim unused part of wellsite if productive

☐ Special construction methods to enhance reclamation

☐ Other _____

Comments: Will use existing county road, #146. About 4528' of new access road will be built into this location, from the county road. Drill cutting will be disposed of in the lined cuttings pit. Oil based invert drilling fluids will be recycled. Reserve pit fluids will be recycled and/or haul to a commercial disposal. Lined cuttings pit will be backfilled when dry. No special concerns.

Health Hazards/Noise

(possible concerns)

Proximity to public facilities/residences: Closest residences are about ¾ of a mile to the west northwest, about 1.25 miles to the southwest, about 1.625 miles to the northeast and about 1.625 miles to the northeast is St. Bernard's Church from this location.

Possibility of H2S: Slight chance of H2S (Mississippian Formations).

Size of rig/length of drilling time: Triple drilling rig/short 30 to 40 days drilling time.

Mitigation:

☒ Proper BOP equipment

☐ Topographic sound barriers

☐ H2S contingency and/or evacuation plan

☐ Special equipment/procedures requirements

☐ Other: _____

Comments: Adequate surface casing and operational BOP should mitigate any problems. No concerns

Wildlife/recreation

(possible concerns)

Proximity to sensitive wildlife areas (DFWP identified): None identified.

Proximity to recreation sites: None identified.

Creation of new access to wildlife habitat: No

Conflict with game range/refuge management: No

Threatened or endangered Species: Species identified as threatened by the USFWS are Pallid Sturgeon, Interior Lease Tern, Piping Plover and Whooping Crane. Species listed as candidate species are the Greater Sage Grouse and Sprague's Pipit. NH tracker website for this Township and Range lists zero (0) species of concern.

Mitigation:

- ☐ Avoidance (topographic tolerance/exception)
- ☒ Other agency review (DFWP, federal agencies, DSL)
- ☐ Screening/fencing of pits, drillsite
- ☐ Other: _____

Comments: Federal minerals will be intersected by the horizontal lateral. BLM will do on site EA. Private surface prairie grassland. There maybe species of concern that maybe impacted by this wellsite. We ask the operator to consult with the surface owner as to what he would like done, if a species of concern is discovered at this location. The Board of Oil & Gas has no jurisdiction over private surface lands.

Historical/Cultural/Paleontological

(possible concerns)

Proximity to known sites: None identified .

Mitigation

- ☐ avoidance (topographic tolerance, location exception)
- ☒ other agency review (SHPO, DSL, federal agencies)
- ☐ Other: _____

Comments: Federal minerals will be intersected by the horizontal lateral. BLM will do on site EA. On private surface prairie grassland. There maybe possible historical/cultural/paleontological sites that maybe impacted by this wellsite. We ask the operator to consult with the surface owner as to his desires to preserve these sites or not, if they are found during construction of the wellsite. The Board of Oil & Gas has no jurisdiction over private surface lands.

Social/Economic

(possible concerns)

- ☐ Substantial effect on tax base
- ☐ Create demand for new governmental services
- ☐ Population increase or relocation

Comments: Wildcat well. No concerns.

Remarks or Special Concerns for this site

Well is a 18,816'MD/9,100'TVD a single lateral horizontal Bakken Formation well test.

Summary: Evaluation of Impacts and Cumulative effects

No long term impact expected, some short term impacts will occur.

I conclude that the approval of the subject Notice of Intent to Drill (does/**does not**) constitute a major action of state government significantly affecting the quality of the human environment, and (does/**does not**) require the preparation of an environmental impact statement.

Prepared by (BOGC): /s/Steven Sasaki
(title:) Chief Field Inspector
Date: February 23, 2012

Other Persons Contacted:

Montana Bureau of Mines and Geology, GWIC website

(Name and Agency)
Richland County water wells
(subject discussed)
February 23, 2012
(date)

US Fish and Wildlife, Region 6 website
(Name and Agency)
ENDANGERED, THREATENED, PROPOSED AND CANDIDATE SPECIES
MONTANA COUNTIES, Richland County
(subject discussed)

February 23, 2012
(date)

Montana Natural Heritage Program Website (FWP)
(Name and Agency)
Heritage State Rank= S1, S2, S3, T26N R53E
(subject discussed)

February 23, 2012
(date)

If location was inspected before permit approval:

Inspection date: _____

Inspector: _____

Others present during inspection: _____